

WHAT IS CLAIMED IS:

1 1. A cross-connect method for performing a  
2 cross-connect operation on a main signal which includes  
3 a path-for-work signal transmitted over a path for work  
4 and a path-for-protection signal transmitted over a  
5 path for protection, said method comprising the steps  
6 of:

7 retaining line setting information required for  
8 the cross-connect operation; and

9 controlling the cross-connect operation of the  
10 main signal based on said line setting information,  
11 said cross-connect operation being controlled in such  
12 a manner that one of the path-for-work signal and the  
13 path-for-protection signal is to be selectively  
14 output.

1 2. A cross-connect apparatus comprising:

2 a cross-connect section for performing a  
3 cross-connect operation on a main signal which includes  
4 a path-for-work signal transmitted over a path for work  
5 and a path-for-protection signal transmitted over a  
6 path for protection;

7 a memory section for retaining line setting  
8 information required for the cross-connect operation;  
9 and

10 a cross-connect control section for controlling

11 the cross-connect operation, which is performed by the  
12 cross-connect section, based on said line setting  
13 information, said cross-connect control section being  
14 configured to control the cross-connect operation, in  
15 such a manner that one of the path-for-work signal and  
16 the path-for-protection signal is to be selectively  
17 output.

1 3. A cross-connect apparatus according to claim  
2 2, wherein said cross-connect control section  
3 includes:

4 an alarm detection section for detecting alarm  
5 information in the main signal;

6 an alarm information cross-connect section for  
7 performing a cross-connect operation on said alarm  
8 information, which has been detected by said alarm  
9 detection section, based on said line setting  
10 information retained in said memory section; and

11 a switch control section for generating a  
12 selection information specifying which one of the  
13 path-for-work signal and said path-for-protection  
14 signal should be selected for output, based on said  
15 alarm information performed by said alarm information  
16 cross-connect section for outputting said selection  
17 information,

18 said cross-connect operation being operable to  
19 perform the cross-connect operation based on said

20 selection information output from said switch control  
21 section.

1 4. A cross-connect apparatus according to claim  
2 3, wherein said alarm detection section encodes said  
3 detected alarm information in accordance with a  
4 predetermined priority, and said switch control  
5 section generates said selection information based on  
6 said encoded alarm information.

1 5. A cross-connect apparatus according to claim  
2 3, wherein said cross-connect control section further  
3 includes:

4 a concatenation information detection section  
5 for detecting concatenation information relating to  
6 combination of header data and subsequent data in the  
7 main signal; and

8 a concatenation information cross-connect  
9 section for performing said cross-connect operation on  
10 said concatenation information, which has been  
11 detected by said concatenation information detection  
12 section, in accordance with said line setting  
13 information retained in the memory section,

14 said switch control section being operable to  
15 generate selection information, based on said  
16 concatenation information as the result of the  
17 cross-connect operation of said concatenation

18 information cross-connect section and said alarm  
19 information as the result of the cross-connect  
20 operation of said alarm information cross-connect  
21 section.

1 6. A cross-connect apparatus according to claim  
2 5, wherein said concatenation information detection  
3 section encodes said concatenation information  
4 detected by said concatenation information detection  
5 section, and said switch control section generates said  
6 selection information, based on said concatenation  
7 information, which has been encoded by said  
8 concatenation information detection section and on  
9 which the cross-connect operation has been performed  
10 by said concatenation information cross-connect  
11 section.

1 7. A cross-connect apparatus according to claim  
2 5, wherein the cross-connect control section subjects  
3 said subsequent data of said concatenation information  
4 to execute the same cross-connect control as said  
5 header data of said concatenation information.